



BREASTFEEDING KNOWLEDGE AND ATTITUDE INSTRUMENT: VALIDITY AND RELIABILITY TESTING AMONG PRIMIPAROUS MOTHERS

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ABSTRACT

Breast milk is widely recognized as the optimal source of infant nutrition, yet exclusive breastfeeding coverage remains below global and national targets. Maternal knowledge and attitudes, especially among primiparous mothers, are key determinants of breastfeeding practices. Therefore, valid and reliable instruments are essential to measure these factors accurately. Objective to develop and test the validity and reliability of questionnaires assessing knowledge and attitudes toward breastfeeding among primiparous mothers. This study applied a cross-sectional design involving 15 postpartum mothers with normal deliveries at RSUD Dr. Soewardi Kendal. Two instruments were tested: a 16-item knowledge questionnaire and a 15-item attitude questionnaire. Validity was assessed using Pearson's correlation with r table = 0.514, and reliability was tested using Cronbach's alpha. The knowledge questionnaire showed 12 valid items with a Cronbach's alpha of 0.833, indicating good internal consistency. The attitude questionnaire produced 12 valid items with a Cronbach's alpha of 0.861, reflecting excellent reliability. Both the knowledge and attitude questionnaires demonstrated strong validity and reliability, making them feasible instruments for assessing breastfeeding-related factors among primiparous mothers in future research.

Keywords: attitudes; breastfeeding; knowledge; primiparous mothers; questionnaire; reliability; validity

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INTRODUCTION

Breast milk is globally recognized as the gold standard of infant nutrition. Its dynamic composition not only fulfills nutritional requirements for optimal growth and brain development but also contains bioactive components such as antibodies, enzymes, and hormones that provide critical protection against various infections during the first year of life (Victora et al., 2016). Given these superior benefits, international health organizations such as the World Health Organization (WHO) and UNICEF recommend exclusive breastfeeding for the first six months of life, followed by continued breastfeeding alongside appropriate complementary foods until the child is two years of age or older.

Despite these global recommendations and the implementation of multiple health promotion programs, achieving the target for exclusive breastfeeding remains a significant challenge across many countries, including Indonesia. Global reports indicate that only about 44% of infants under six months receive exclusive breastfeeding, which falls short of the World Health Assembly's target of 70% by 2030 (United Nations Children's Fund (UNICEF) & World Health Organization (WHO), 2023). In Indonesia, data from the 2022 Indonesian Nutritional Status Survey (SSGI) reported an exclusive breastfeeding coverage of 52%. Although this figure reflects a modest increase, substantial acceleration is still required to achieve the national target (Kementrian Kesehatan RI, 2021).

This situation has been further complicated by global health crises, particularly the COVID-19 pandemic. At the onset of the pandemic, concerns about the potential transmission of SARS-CoV-2 through breast milk created uncertainty among mothers and healthcare providers. Although scientific evidence later confirmed that transmission through breast milk is exceedingly rare and that the benefits of breastfeeding far outweigh the risks, misinformation and heightened anxiety led to declines in early initiation of breastfeeding (IMD) and exclusive breastfeeding rates in several regions (Wake, 2021).

Breastfeeding practices are influenced by multiple complex factors, with maternal knowledge and attitudes playing a central role (Alzaheb, 2017; Sabo et al., 2023). This is particularly crucial for primiparous mothers, who are experiencing childbirth and lactation for the first time. The initial breastfeeding experience is often accompanied by physical and psychological challenges, including nipple pain, fatigue, and doubts about milk adequacy (Erfina, Widyawati, McKenna, Reisenhofer, & Ismail, 2019). Without prior experience, primiparous mothers rely heavily on the information they receive to shape their beliefs (attitudes) and skills (behaviors) related to breastfeeding. Accurate and comprehensive knowledge about the benefits of breastfeeding, correct techniques, and effective management of lactation problems provides the foundation for fostering positive attitudes and high self-efficacy. Conversely, inadequate or misleading information can easily result in negative attitudes, heightened anxiety, and premature decisions to switch to formula feeding (Alzaheb, 2017).

To bridge knowledge gaps and foster positive attitudes, a variety of health education interventions have been developed, ranging from lactation counseling and antenatal classes to the use of digital media. However, the effectiveness of these interventions depends heavily on the ability to assess baseline conditions and evaluate program outcomes accurately. This requires the use of measurement instruments specifically questionnaires that are not only contextually relevant but also proven to be valid and reliable. Validity ensures that the instrument accurately measures the intended constructs (knowledge and attitudes toward breastfeeding), while reliability guarantees consistent results when applied at different times or by different assessors (Kazeminia et al., 2020; Souza, Alexandre, & Guirardello, 2017). The use of instruments lacking tested validity and reliability risks generating biased data, leading to incorrect conclusions and, ultimately, ineffective interventions (Ungváry, Ittész, Bóné, & Török, 2021). In light of this urgency, the present study aims to develop and conduct validity and reliability testing of a questionnaire specifically designed to assess the knowledge and attitudes of primiparous mothers toward breastfeeding.

METHOD

This study employed a quantitative research design, specifically a questionnaire testing study with a cross-sectional approach. The research was conducted to assess the validity and reliability of the instruments. The respondents consisted of 15 postpartum mothers with normal deliveries at RSUD Dr. Soewardi Kendal. Two instruments were tested: a breastfeeding knowledge questionnaire and a breastfeeding attitude questionnaire, both of which were developed by the researchers based on the theoretical framework applied in the study. The knowledge questionnaire was scored as follows: agree (1), disagree (0), and do not know (0). The attitude questionnaire consisted of 12 negatively worded items, assessed using a five-point Likert scale ranging from strongly disagree (5), disagree (4), neutral (3), agree (2), to strongly agree (1). For positively worded items, the scoring was reversed. The validity of the instruments was tested using Pearson's correlation, while reliability was assessed using Cronbach's alpha with a significance level set at 0.05.

RESULT

The validity and reliability testing of the instruments was conducted on October, 2022, involving 15 postpartum mothers with normal deliveries at RSUD Dr. Soewardi Kendal. The results of the instrument testing are as follows:

Table 1.
Results of the Validity and Reliability Test of the Knowledge Questionnaire

No. Item	R Tabel	R Result	Information	<i>Alpha Cronbach</i>
Item 1	N = 15	0.705	Valid	0.833 (Reliabel)
Item 2	Sig. 0.05	0.866	Valid	
Item 3	R tabel = 0.514	0.866	Valid	
Item 4		0.866	Valid	
Item 5		-0.37	Not Valid	
Item 6		0.866	Valid	
Item 7		0.871	Valid	
Item 8		0.866	Valid	
Item 9		0.866	Valid	
Item 10		-0.096	Not Valid	
Item 11		0.871	Valid	
Item 12		-0.196	Not Valid	
Item 13		0.871	Valid	
Item 14		0.004	Not Valid	
Item 15		0.705	Valid	
Item 16		0.866	Valid	

Based on the results presented in table 1, it can be explained that 12 items of the breastfeeding knowledge questionnaire were found to be valid, while 4 items were deemed invalid, with correlation coefficients (*r calculated*) greater than 0.514. The reliability test showed that the questionnaire was highly reliable, with a Cronbach's alpha value of 0.833 at a significance level of 0.05.

Table 2.
Results of Validity and Reliability Test of Attitude Questionnaire

No. Item	R Tabel	R Result	Information	<i>Alpha Cronbach</i>
Item 1	N = 15 responden	0.887	Valid	0.861 (Reliabel)
Item 2	Sig. 0.05	0.950	Valid	
Item 3	R tabel = 0.514	0.804	Valid	
Item 4		0.634	Valid	
Item 5		0.918	Valid	
Item 6		-0.301	NotValid	
Item 7		-0.340	Not Valid	
Item 8		0.918	Valid	
Item 9		0.918	Valid	
Item 10		0.20	Not Valid	
Item 11		0.648	Valid	
Item 12		0.642	Valid	
Item 13		0.904	Valid	
Item 14		0.856	Valid	
Item 15		0.918	Valid	

Based on the results presented in Table 2, it can be explained that 12 items of the breastfeeding attitude questionnaire were found to be valid, while 3 items were deemed invalid, with correlation coefficients (*r calculated*) greater than 0.514. The reliability analysis demonstrated that the questionnaire was highly reliable, with a Cronbach's alpha value of 0.861 at a significance level of 0.05.

DISCUSSION

Validity is a concept that refers to the extent to which a measurement instrument accurately performs its intended function, namely measuring the variables it is designed to measure (Nursalam, 2017). The validity testing process is essential to evaluate the feasibility of each questionnaire item,

where irrelevant items must be eliminated or revised. Validity assessment encompasses several categories, including content validity, which ensures that the instrument adequately covers the domain of the variable, and construct validity, which focuses on the extent to which the instrument reflects the underlying theoretical concept (Heale & Twycross, 2015). Statistically, item validity is determined by comparing the calculated correlation coefficient (*r calculated*) with the critical value (*r table*).

Reliability, on the other hand, is defined as the consistency or stability of measurement results. An instrument is considered reliable if it is able to produce relatively consistent data even when applied across different times, settings, or subjects. The main purpose of reliability testing is to ensure that the resulting data are consistent and trustworthy. One of the most widely used methods for assessing reliability is Cronbach's alpha, which measures internal consistency on a scale from 0 to 1.

In this study, instrument testing was conducted on 15 postpartum mothers, with a significance level set at 5% ($\alpha = 0.05$). Based on the number of respondents, the *r table* value was determined to be 0.514. This served as the main criterion for assessing the validity of each item, whereby an item was considered valid if its correlation coefficient (*r calculated*) exceeded 0.514. The validity test of the 16-item breastfeeding knowledge questionnaire showed that the majority of items met the criteria: 12 items were valid, while 4 items (items 5, 10, 12, and 14) were not. The low correlation values of these four items indicate that they were not aligned or failed to measure the same construct of knowledge as the other items. Consistent with the study, invalid items should be eliminated to maintain the integrity of construct measurement (Darsini, 2020). Such inconsistencies may arise from ambiguous wording, multiple interpretations, or irrelevance to the intended knowledge domain. From the perspective of reliability, the knowledge questionnaire demonstrated excellent internal consistency, with a Cronbach's alpha value of 0.833. This finding aligns with Beni et al, who emphasized that Cronbach's alpha values above 0.982 indicate good reliability (Beni, Nursalam, & Hasinuddin, 2020). Thus, the value of 0.833 in this study confirms that the instrument is highly dependable for consistently measuring breastfeeding knowledge.

The breastfeeding attitude questionnaire, which consisted of 15 items, also demonstrated satisfactory results. The validity test indicated that 12 items were valid, while 3 items (items 6, 7, and 10) were invalid. The failure of these three items to meet the validity criteria suggests that they did not contribute significantly to the overall measurement of the attitude construct and were therefore excluded from the final questionnaire. The reliability analysis showed a Cronbach's alpha value of 0.861, indicating a very high level of internal consistency. This result is supported by previous studies on the development of the Breastfeeding Attitude Scale (BAS), which also reported high reliability values for attitude instruments (Escribano, Herrero-Oliver, Oliver-Roig, & Richart-Martínez, 2024). This finding confirms that the valid items within the attitude questionnaire were strongly interrelated and capable of producing stable measurements. The results of the instrument testing indicate that, after eliminating invalid items, both the knowledge and attitude questionnaires were proven to be valid and reliable. Therefore, the refined instruments are considered appropriate and ready to be used in collecting accurate and credible research data.

CONCLUSION

Both instruments developed, namely the knowledge questionnaire and the attitude questionnaire, met the standards of validity and reliability based on statistical testing. The knowledge questionnaire yielded 12 valid items with a Cronbach's Alpha coefficient of 0.833, indicating very good internal consistency. Similarly, the attitude questionnaire produced 12 valid items with a very high level of reliability, as evidenced by a Cronbach's Alpha coefficient of 0.861. Therefore, the final instruments, consisting of the tested items, are deemed feasible, accurate, and suitable for use in subsequent data collection.

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